CANCER FACTS

National Cancer Institute • National Institutes of Health
Department of Health and Human Services

Colorectal Cancer Screening: Questions and Answers

1. What is colorectal cancer?

Colorectal cancer is a disease in which cells in the colon or rectum become abnormal and divide without control or order, forming a mass called a tumor. (The colon and rectum are parts of the body's digestive system that remove nutrients from food and water and store solid waste until it passes out of the body.) Cancer cells invade and destroy the tissue around them. They can also break away from the tumor and spread to form new tumors in other parts of the body.

Colorectal cancer is the fourth most common type of cancer and the second leading cause of cancer death in the United States. The number of new cases and deaths resulting from this disease is decreasing. Still, over 135,000 new cases are diagnosed and more than 56,000 people die from colorectal cancer each year.

2. Who is at risk for colorectal cancer?

The exact causes of colorectal cancer are not known. However, studies show that certain factors increase a person's chance of developing colorectal cancer:

- **Age**—Colorectal cancer is more likely to occur as people get older. Although the disease can occur at any age, most people who develop colorectal cancer are over the age of 50.

- **Polyps**—Polyps are benign (noncancerous) growths that protrude from the inner wall of the colon or rectum. They are relatively common in people over age 50. Because experts believe most colorectal cancers develop in polyps, detecting and removing these growths may be a way to help prevent colorectal cancer. The procedure to remove polyps is called a polypectomy.

  Familial adenomatous polyposis, or FAP, is a rare, inherited condition in which hundreds of polyps develop in the colon and rectum. Because this condition is extremely likely to lead to colorectal cancer, it is often treated with surgery to

remove the colon and rectum (colectomy). Rectum-sparing surgery may be an option. Researchers are studying the use of anti-inflammatory drugs as a treatment for FAP.

- **Personal history**—A person who has already had colorectal cancer may develop colorectal cancer a second time. Also, research studies show that women with a history of ovarian, uterine, or breast cancer have a higher-than-average chance of developing colorectal cancer.

- **Family history**—Close relatives (parents, siblings, or children) of a person who has had colorectal cancer are somewhat more likely to develop this type of cancer themselves, especially if the family member developed the cancer at a young age. If many family members have had colorectal cancer, the chances increase even more.

- **Ulcerative colitis or Crohn's colitis**—Ulcerative colitis is a condition that causes inflammation and sores (ulcers) in the lining of the colon. Crohn's colitis (also called Crohn's disease) causes chronic inflammation of the gastrointestinal tract, most often the small intestine (the part of the digestive tract that is located between the stomach and the large intestine). People who have ulcerative colitis or Crohn's colitis may be more likely to develop colorectal cancer than people who do not have these conditions.

- **Diet**—Some evidence suggests that the development of colorectal cancer may be associated with a diet that is high in fat and calories and low in foods with fiber, such as whole grains, fruits, and vegetables. Researchers are exploring what role these and other dietary components play in the development of colorectal cancer.

3. What is screening, and why is it important?

Screening means checking for health problems before they cause symptoms. Screening can find some cancers before they spread to other parts of the body.

Colorectal cancer screening is used to detect cancer, polyps that may eventually become cancerous, or other abnormal conditions. If screening detects an abnormality, diagnosis and treatment can occur promptly. Colorectal cancer is generally more treatable when it is found early.

4. What methods are used to screen people for colorectal cancer?

Health care providers may suggest one or more of the tests listed below for colorectal cancer screening.

- A **fecal occult blood test (FOBT)** checks for hidden blood in the stool. Studies have proven that this test, when performed every 1 to 2 years in people age 50 to 80, reduces the number of deaths due to colorectal cancer.

- A **sigmoidoscopy** is an examination of the rectum and *lower* colon using a lighted instrument called a sigmoidoscope. Sigmoidoscopy can find precancerous or cancerous growths in the rectum and lower colon. Studies suggest that regular screening with sigmoidoscopy after age 50 can reduce the number of deaths from colorectal cancer.

- A **colonoscopy** is an examination of the rectum and *entire* colon using a lighted instrument called a colonoscope. Colonoscopy can find precancerous or cancerous growths throughout the colon, including the upper part of the colon, where they would be missed by sigmoidoscopy. However, it is not known whether this benefit outweighs the increased risks of colonoscopy, which include bleeding and puncturing of the lining of the colon. More research is needed to address these issues.

- A **double contrast barium enema (DCBE)** is a series of x-rays of the entire colon and rectum. The x-rays are taken after the patient is given an enema with a barium solution and air is introduced into the colon. The barium and air help to outline the colon and rectum on the x-rays. Research shows that DCBE is more effective at detecting larger growths than smaller ones.

A digital rectal exam (DRE) is often part of a routine physical examination. In a DRE, the health care provider inserts a lubricated, gloved finger into the rectum to feel for abnormal areas. The test is often used to examine nearby structures, such as the prostate in men. Unlike the colorectal cancer screening tests described above, DRE allows for examination of only the lowest part of the rectum.

Scientists are still studying colorectal cancer screening methods, both alone and in combination, to determine how effective they are. Studies are also under way to clarify the risks of each test.

See question 5 for a table outlining some of the advantages and disadvantages of colorectal cancer screening tests. Additional information about these tests is available from the National Cancer Institute's (NCI) Web site at http://cancer.gov/colon on the Internet.

5. How can people and their health care providers decide which colorectal cancer screening test to use and how often to be screened?

Several major organizations, including the U.S. Preventive Services Task Force (a group of experts convened by the U.S. Public Health Service) and the American Cancer Society, have developed guidelines for colorectal cancer screening. Although their recommendations vary regarding which screening tests to use and how often to be screened, all of these organizations support screening for colorectal cancer.

People should talk with their health care provider about when to begin screening for colorectal cancer, what tests to have, the benefits and risks of each test, and how often to schedule appointments.

The decision to have a certain test will take into account several factors:

- Person's age, medical history, family history, and general health;
- Accuracy of the test;
- Risks associated with the test;
- Preparation required before the test;
- Sedation necessary during the test;
- Followup care after the test;
- Convenience of the test; and
- Cost and insurance coverage of the test.

The following table outlines some of the advantages and disadvantages of the colorectal cancer screening tests described in this fact sheet.

Table: Advantages and Disadvantages of Colorectal Cancer Screening Tests

Test	Advantages	Disadvantages
Fecal Occult Blood Test (FOBT)	• No preparation of the colon is necessary. • Samples can be collected at home. • Cost is low compared to other colorectal cancer screening tests. • There is no risk of infection or tears in the lining of the colon.	• This test fails to detect most polyps and some cancers. • False positive results are possible. ("False positive" means the test suggests an abnormality when none is present.) • Dietary and other limitations, such as increasing fiber intake and avoiding meat, certain vegetables, vitamin C, iron, and aspirin, are necessary for several days before the test. • Additional procedures, such as colonoscopy, may be necessary if the test indicates an abnormality.

Sigmoidoscopy	• The test is usually quick, with few complications. • Discomfort is minimal. • The doctor can perform a biopsy (the removal of tissue for examination under a microscope by a pathologist) and remove polyps during the test, if necessary. • Less extensive preparation of the colon is necessary with this test than for a colonoscopy.	• This test allows the doctor to view only the rectum and the lower part of the colon. Any polyps in the upper part of the colon will be missed. • There is a very small risk of infection or tears in the lining of the colon. • Additional procedures, such as colonoscopy, may be necessary if the test indicates an abnormality.
Colonoscopy	• This test allows the doctor to view the rectum and the entire colon. • The doctor can perform a biopsy and remove polyps during the test, if necessary.	• The test may not detect some small polyps and cancers. • Thorough preparation of the colon is necessary before the test. • Sedation is usually needed. • Complications, such as infection and/or tears in the lining of the colon, can occur.
Double Contrast Barium Enema (DCBE)	• This test usually allows the doctor to view the rectum and the entire colon. • Complications are rare. • No sedation is necessary. • Discomfort is minimal.	• The test may not detect some small polyps and cancers. • Thorough preparation of the colon is necessary before the test. • False positive results are possible. • The doctor cannot perform a biopsy or remove polyps during the test. • Additional procedures are necessary if the test indicates an abnormality.

6. Do insurance companies pay for colorectal cancer screening?

Insurance coverage varies. People should check with their health insurance provider to determine their colorectal cancer screening benefits. Medicare covers several colorectal cancer screening tests for its beneficiaries. Specific information about Medicare benefits is available on the Medicare Web site at http://www.medicare.gov/health/overview.asp on the Internet.

7. What happens if a colorectal cancer screening test shows an abnormality?

If screening tests find an abnormality, the health care provider will perform a physical exam and evaluate the person's personal and family medical history. Additional diagnostic tests may be ordered. These may include x-rays of the gastrointestinal tract, sigmoidoscopy, or colonoscopy (see question 4). The health care provider may also order a blood test called a CEA assay to measure carcinoembryonic antigen, a protein that is sometimes present in higher levels in patients with colorectal cancer.

If an abnormal area is found during a sigmoidoscopy or colonoscopy, a biopsy is performed to determine if cancer is present.

The NCI booklet *What You Need To Know About™ Cancer of the Colon and Rectum* provides more information about the diagnosis and treatment of colorectal cancer. This publication and other cancer resources are available from the NCI Publications Locator at http://cancer.gov/publications on the Internet, or by calling the Cancer Information Service (CIS) toll-free at 1–800–4–CANCER (1–800–422–6237) (see below). Additional information about colorectal cancer is available on the NCI's Web site at http://cancer.gov/colon on the Internet.

8. Are new tests under study for colorectal cancer screening?

Several new tests for colorectal cancer screening and diagnosis are under study. For example, virtual colonoscopy (also called computed tomographic colonography) is a procedure that uses special x-ray equipment to produce pictures of the colon. A computer then assembles these pictures into detailed images that can show polyps and other abnormalities. Because it is less invasive and does not require sedation, virtual colonoscopy may cause less discomfort and take less time than conventional colonoscopy. However, unlike conventional colonoscopy, it is not possible to remove polyps or perform a biopsy during this test. An additional procedure, such as conventional colonoscopy, is needed if the virtual procedure finds a potential problem. Clinical trials (research studies with people) are under way to compare the advantages and disadvantages of virtual colonoscopy with those of other colorectal cancer screening tests.

Genetic testing of stool samples is also under study as a possible way to screen for colorectal cancer. The lining of the colon is constantly shedding cells into the stool. Testing stool samples for genetic alterations that occur in colorectal cancer cells may help doctors find evidence of cancer. Research conducted thus far has shown that this test can detect colorectal cancer in people already diagnosed with this disease by other means. However, more studies are needed to determine whether the test can detect colorectal cancer in people who do not have symptoms.

Additional information about clinical trials to test new methods for colorectal cancer screening is available from the NCI's Web site at http://cancer.gov/clinical_trials/ on the Internet, or by calling the CIS at 1–800–4–CANCER (1–800–422–6237).

References

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Sources of National Cancer Institute Information

Cancer Information Service

Toll-free: 1–800–4–CANCER (1–800–422–6237)
TTY (for deaf and hard of hearing callers): 1–800–332–8615

NCI Online

Internet

Use http://cancer.gov to reach the NCI's Web site.

LiveHelp
Cancer Information Specialists offer online assistance through the *LiveHelp* link on the NCI's Web site.

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